APPENDIX B: MEASURED POWER LEVELS

In this appendix, the measured power levels are presented. These data were collected for the following parameters. The receiving antenna was mounted on the measurement vehicle. The antenna height was 2.96 m (9.68 ft) and had an antenna gain of 1.9 dBi (1.55). At the Eldorado Mountain site, the transmitting antenna had a height of 3.66 m (12.0 ft) and an antenna gain of 1.9 dBi (1.55), while at the Squaw Mountain location, the transmitting antenna had a height of 8.20 m (26.91 ft) and an antenna gain of 6.5 dBi (4.47). The input power at the antenna terminal was different for the two different sites and different for the two frequencies. At the Eldorado Mountain site, the input power at the antenna terminal was 20.6 dBm (0.11 W) for the 533 MHz system and 28.6 dBm (0.72 W) for the 772 MHz system. At the Squaw Mountain site, the input power at the antenna terminal was 28.6 dBm (0.72 W) for the 533 MHz system and 37.0 dBm (5.0 W) for the 772 MHz system.

B.1 Measured Data for a Transmitter on Eldorado Mountain at 533 MHz.

At this location and frequency, the transmitter power level was 20.6 dBm (0.11 W) with an antenna height of 3.66 m (12.0 ft) and a gain of 1.9 dBi (1.55). The height of the receiving antenna was 2.95 m (9.68 ft) with a gain of 1.9 dBi (1.55). Figures B.1 through B.10 present the measured power levels for various locations around the Boulder area.

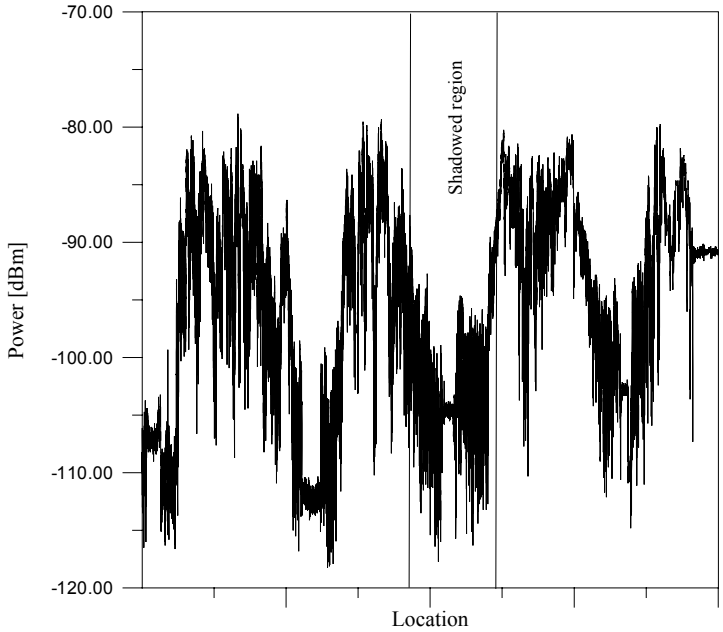

Figure B.1. Measured power levels for different locations at the DOC Laboratories for 533 MHz from a transmitter on Eldorado Mountain. The results correspond to different locations as the measurement vehicle was driven along various roads on the Laboratory property.

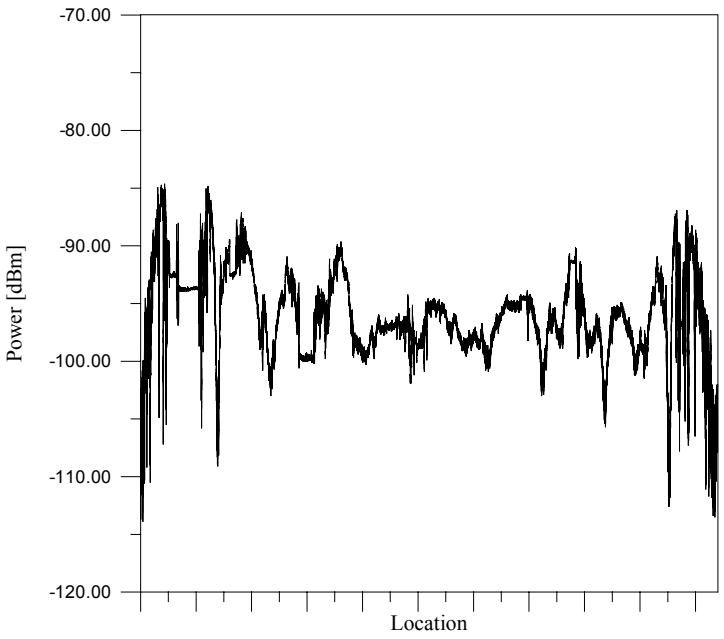

Figure B.2. Measured power levels at various locations on the Table Mountain NRQZ for 533 MHz from a transmitter on Eldorado Mountain. The results correspond to different locations as the measurement vehicle was driven along the north-south road and the east-west road on the NRQZ.

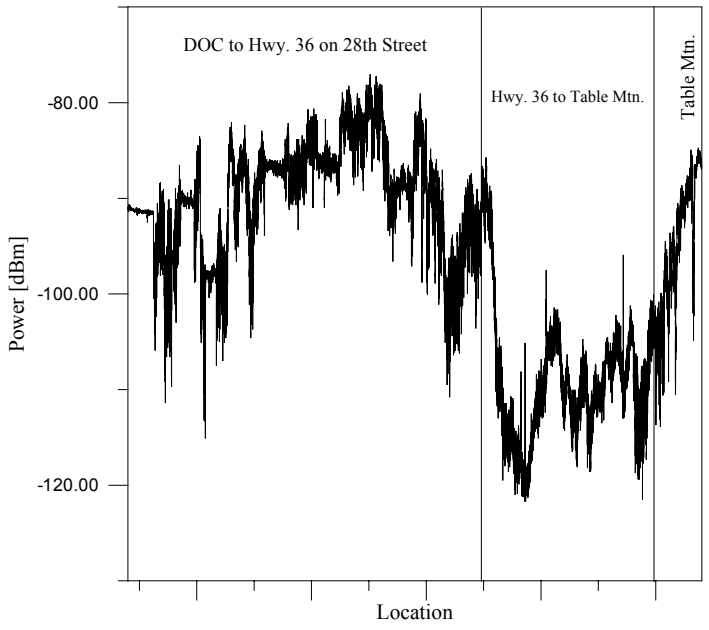

Figure B.3. Measured power levels on the 28th Street route for 533 MHz from a transmitter on Eldorado Mountain. These data were taken on 28th Street and on Highway 36 (from the DOC Laboratories to the Table Mountain NRQZ).

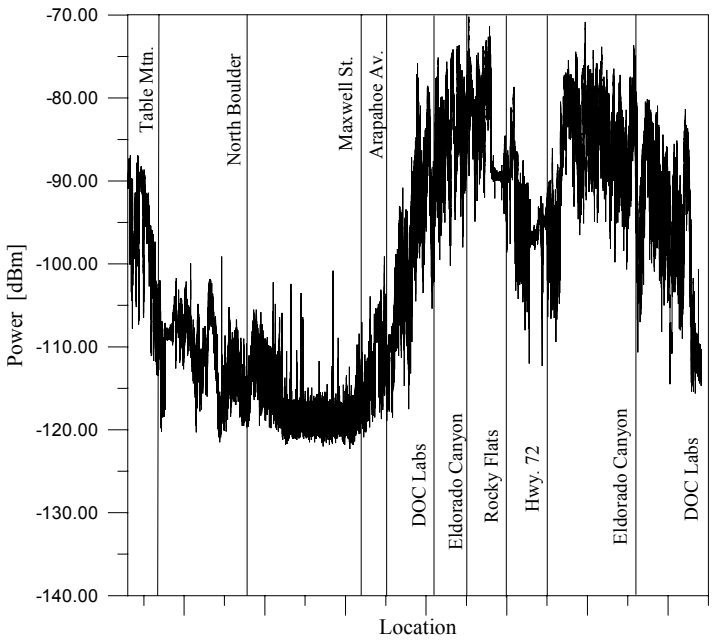

Figure B.4. Measured power levels on the Broadway loop for 533 MHz from a transmitter on Eldorado Mountain. These measured data were taken on Highway 36 and Highway 93, starting at the Table Mountain NRQZ going to Highway 72, and returning to the DOC Laboratories.

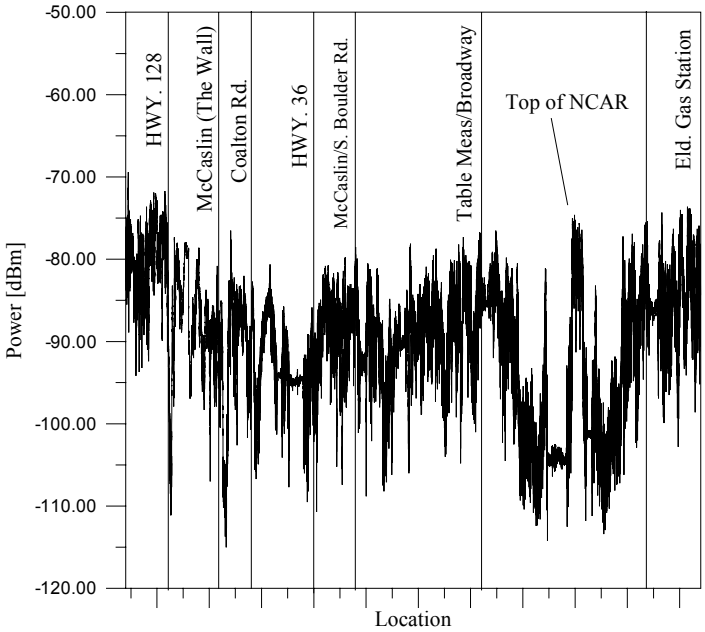

Figure B.5. Measured power levels on the McCaslin loop for 533 MHz from a transmitter on Eldorado Mountain. These data were taken on various roads starting at a gas station at Eldorado Canyon and returning to the starting point.

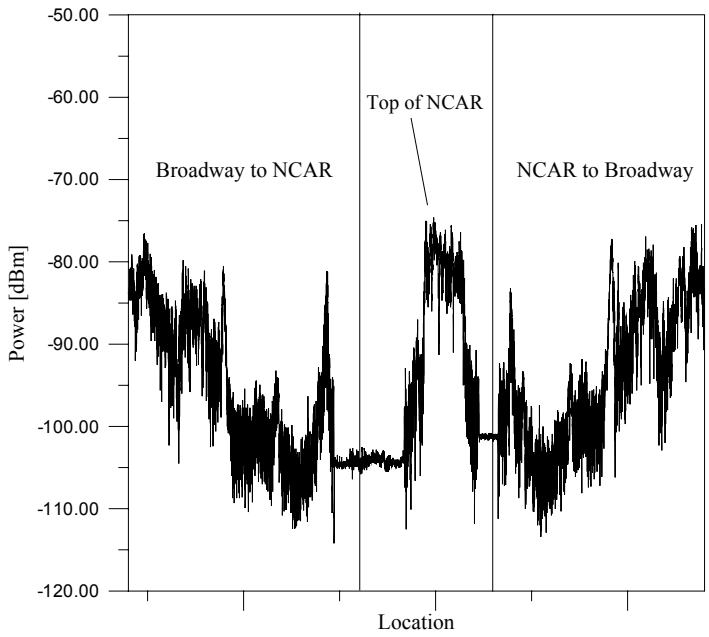

Figure B.6. Measured power levels at the NCAR facility at the top of Table Mesa for 533 MHz from a transmitter on Eldorado Mountain. These data were taken from the intersection of Broadway and Table Mesa, to the top of Table Mesa to NCAR, and returning to the Broadway-Table Mesa intersection.

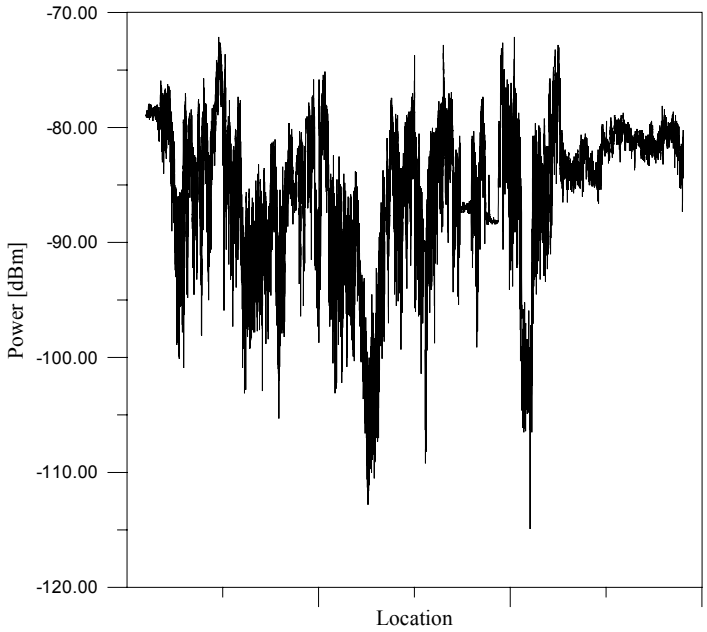

Figure B.7. Measured power levels on the Greenbriar loop for 533 MHz from a transmitter on Eldorado Mountain. This loop consisted of Greenbriar Blvd., Lehigh Street, Table Mesa Drive, and Gillaspie Drive.

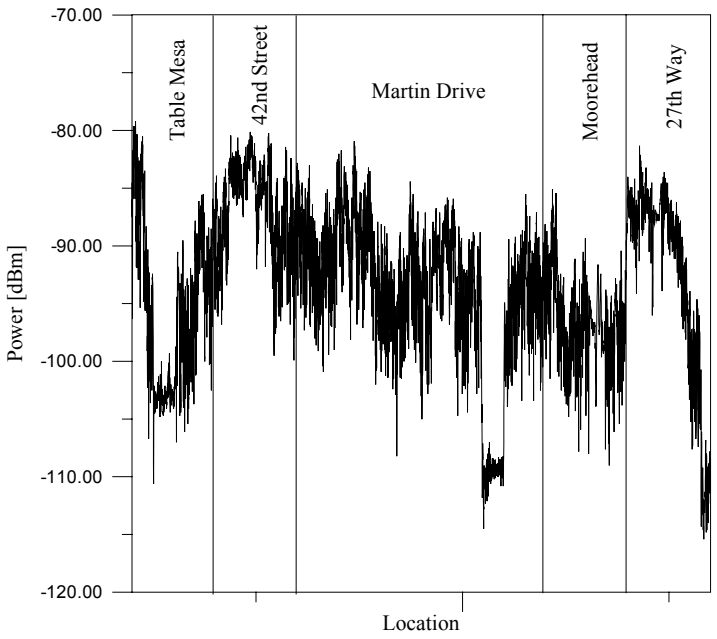

Figure B.8. Measured power levels in the Martin Acres neighborhood for 533 MHz from a transmitter on Eldorado Mountain.

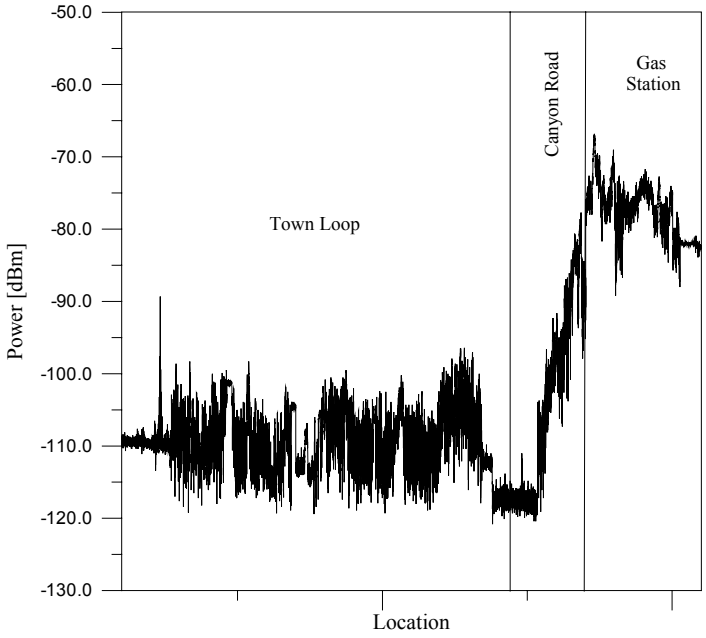

Figure B.9. Measured power levels in Eldorado Canyon for 533 MHz from a transmitter on Eldorado Mountain.

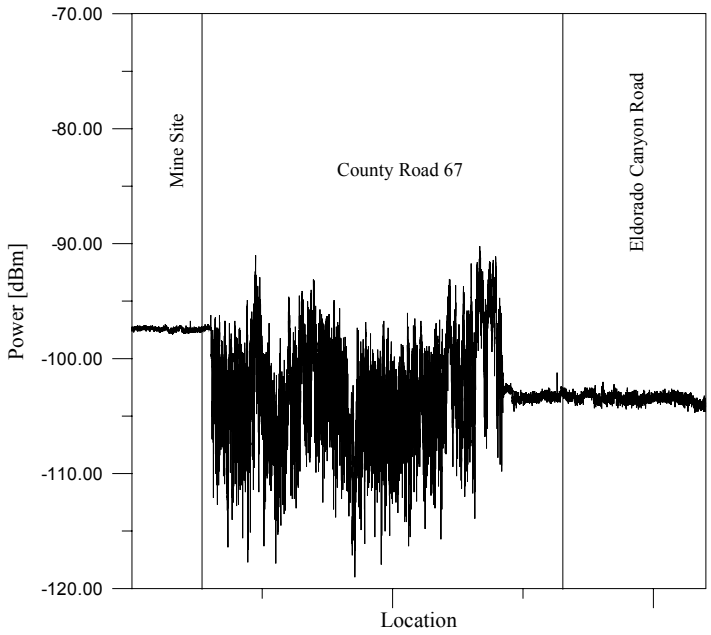

Figure B.10. Measured power levels on County Road 67 for 533 MHz from a transmitter on Eldorado Mountain.

B.2 Measured Data for a Transmitter on Eldorado Mountain at 772 MHz.

At this location and frequency, the transmitter power level was 28.6 dBm (0.72 W) with an antenna height of 3.66 m (12.0 ft) and a gain of 1.9 dBi (1.55). The height of the receiving antenna was 2.95 m (9.68 ft) with a gain of 1.9 dBi (1.55). Figures B.11 through B.20 present the measured power levels for various locations around the Boulder area.

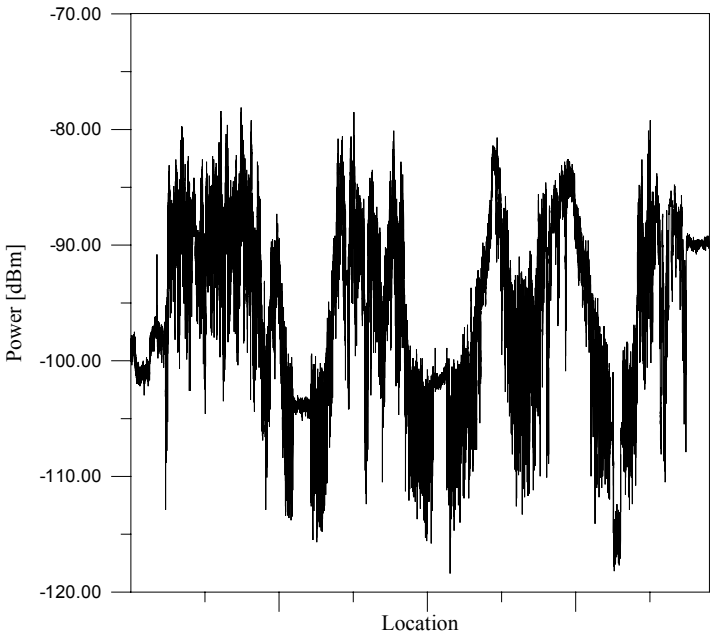

Figure B.11. Measured power levels for various locations at the DOC Laboratories for 772 MHz from a transmitter on Eldorado Mountain. The results correspond to different locations as the measurement vehicle was driven along various roads on the Laboratory property.

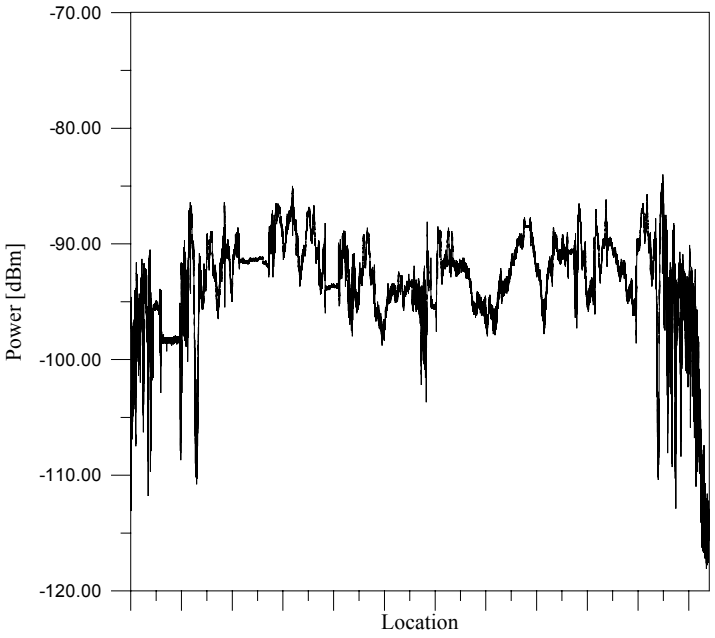

Figure B.12. Measured power levels at various locations on the Table Mountain NRQZ for 772 MHz from a transmitter on Eldorado Mountain. The results correspond to different locations as the measurement vehicle was driven along the north-south road and the east-west road on the NRQZ.

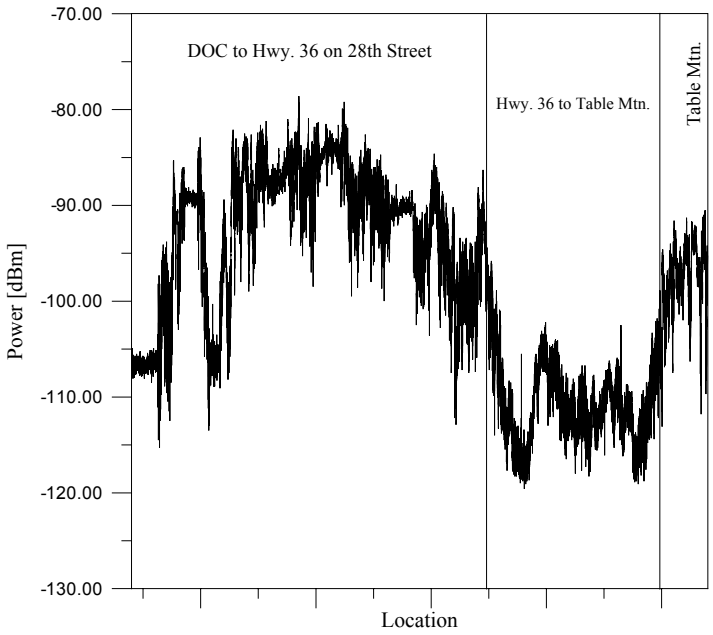

Figure B.13. Measured power levels on the 28th Street route for 772 MHz from a transmitter on Eldorado Mountain. These data were taken on 28th Street to Highway 36 (from the DOC Laboratories to the Table Mountain NRQZ).

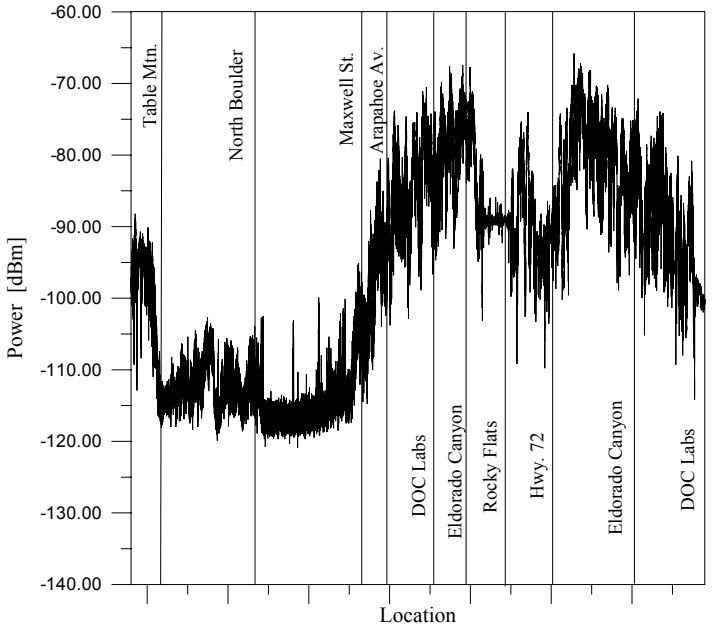

Figure B.14 Measured power levels on the Broadway loop for 772 MHz from a transmitter on Eldorado Mountain. These measured data were taken on Highway 36 and Highway 93, starting at the Table Mountain NRQZ going to Highway 72, and returning to the DOC Laboratories.

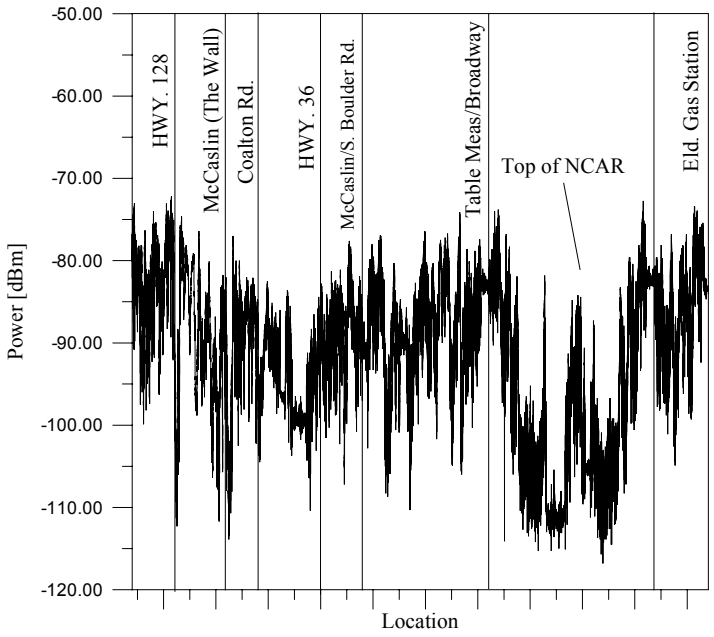

Figure B.15. Measured power levels on the McCaslin loop for 772 MHz from a transmitter on Eldorado Mountain. These data were taken on various roads starting at a gas station at Eldorado Canyon and returning to the starting point.

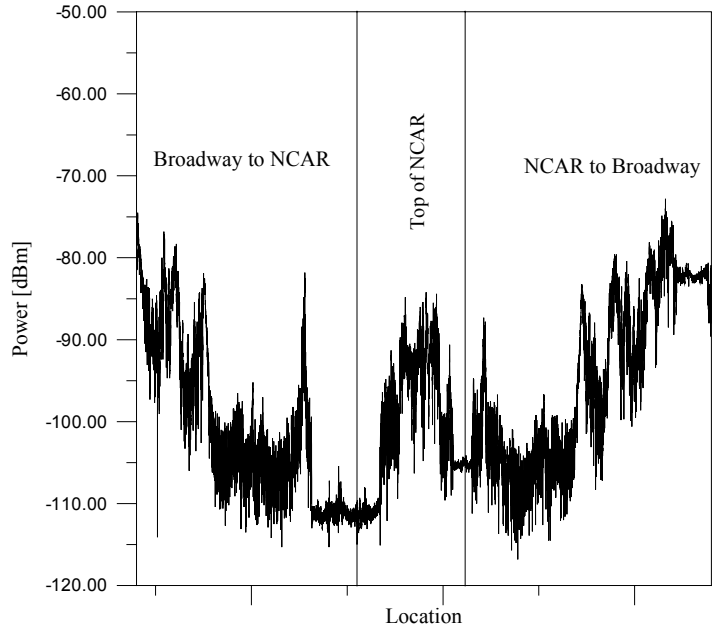

Figure B.16. Measured power levels at the NCAR facility at the top of Table Mesa for 772 MHz from a transmitter on Eldorado Mountain. These data were taken from the intersection of Broadway and Table Mesa, to the top of Table Mesa to NCAR, and returning to the Broadway-Table Mesa intersection.

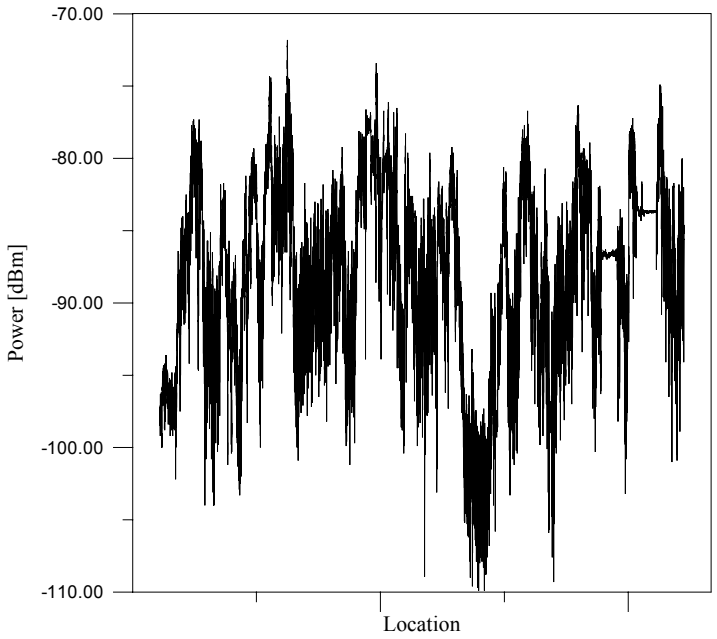

Figure B.17. Measured power levels on the Greenbriar loop for 772 MHz from a transmitter on Eldorado Mountain. This loop consisted of Greenbriar Blvd., Lehigh Street, Table Mesa Drive, and Gillaspie Drive.

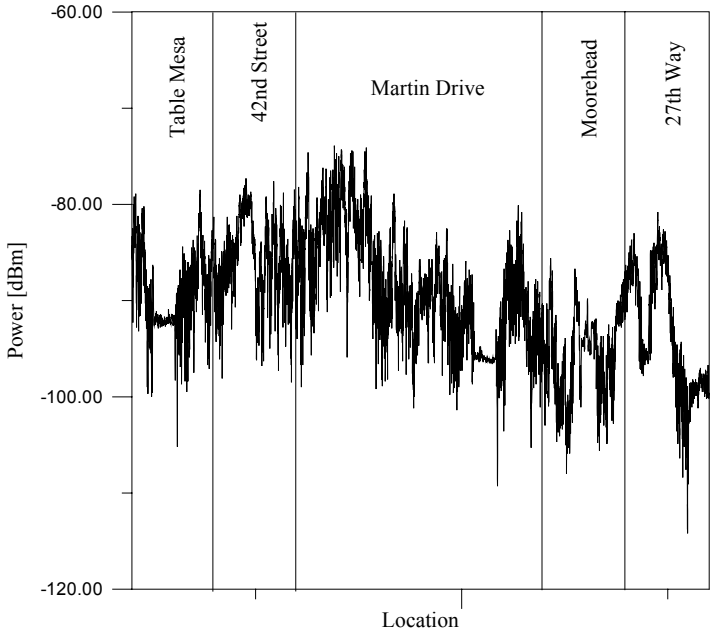

Figure B.18. Measured power levels in the Martin Acres neighborhood for 772 MHz from a transmitter on Eldorado Mountain.

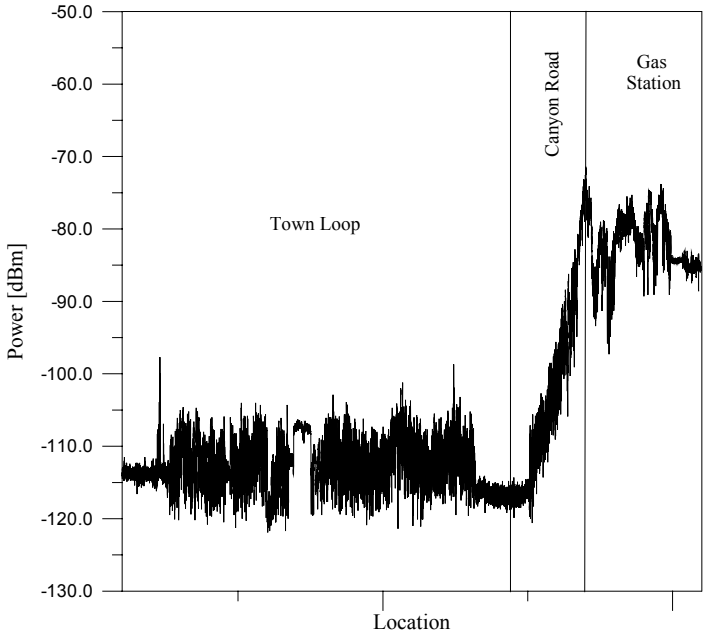

Figure B.19. Measured power levels in Eldorado Canyon for 772 MHz from a transmitter on Eldorado Mountain.

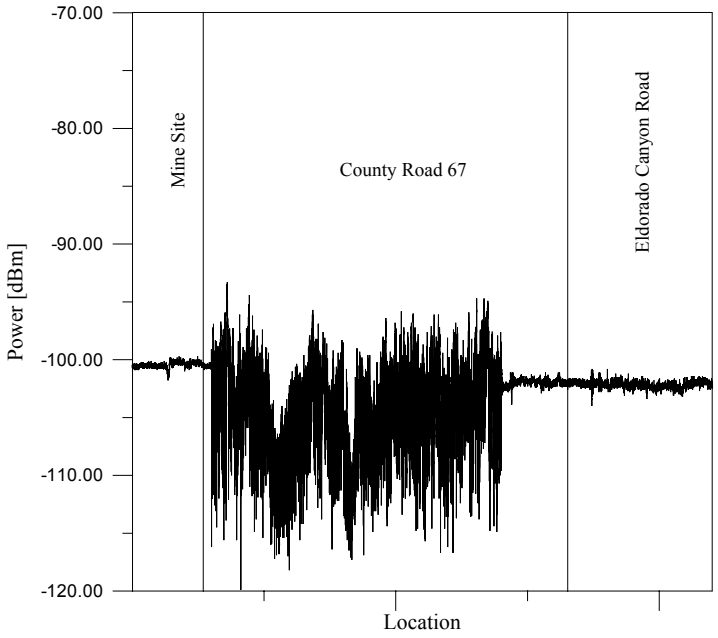

Figure B.20. Measured power levels on County Road 67 for 772 MHz from a transmitter on Eldorado Mountain.

B.3 Measured Data for a Transmitter on Squaw Mountain at 533 MHz.

At this location and frequency, the transmitter power level was 28.6 dBm (0.72 W) with an antenna height of 8.20 m (26.91 ft) and a gain of 6.5 dBi (4.47). The height of the receiving antenna was 2.95 m (9.68 ft) with a gain of 1.9 dBi (1.55). Figures B.21 through B.27 present the measured power levels for various locations around the Boulder area.

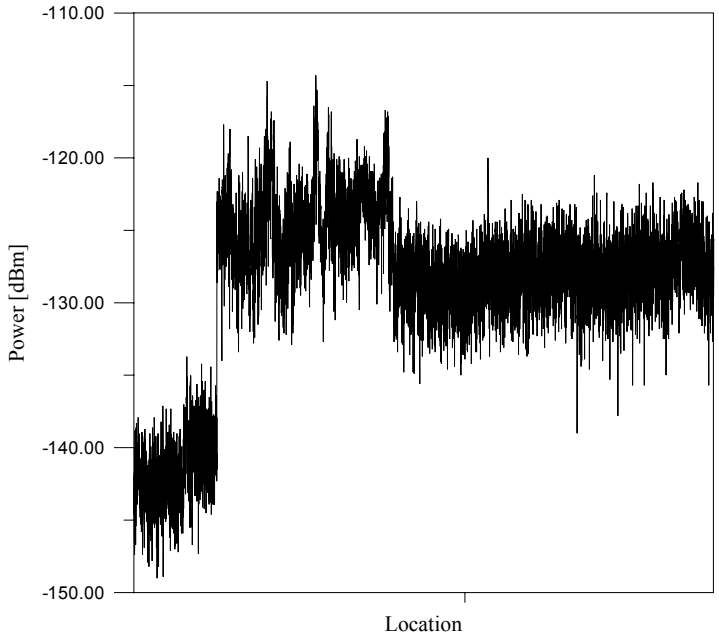

Figure B.21. Measured power levels for various locations at the DOC Laboratories for 533 MHz from a transmitter on Squaw Mountain. The results correspond to different locations as the measurement vehicle was driven along various roads on the Laboratory property.

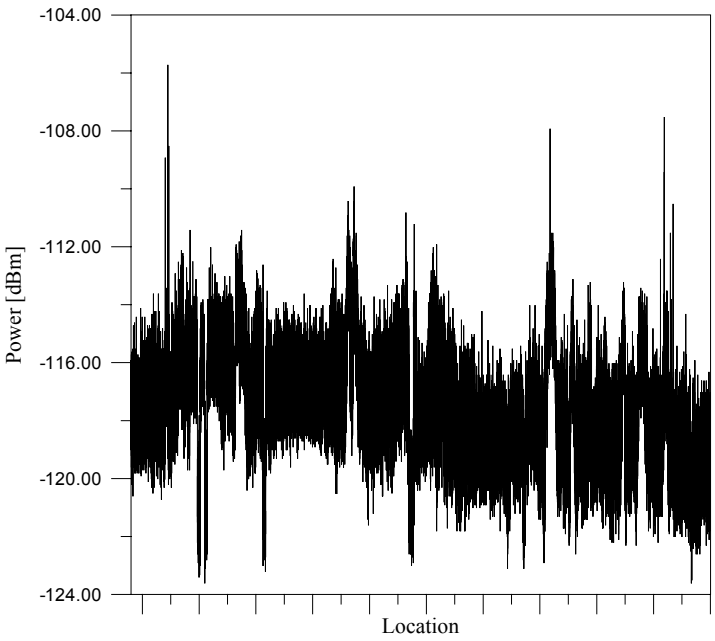

Figure B.22. Measured power levels at different locations on the Table Mountain NRQZ for 533 MHz from a transmitter on Squaw Mountain. The results correspond to different locations as the measurement vehicle was driven along the north-south road and the east-west road on the NRQZ.

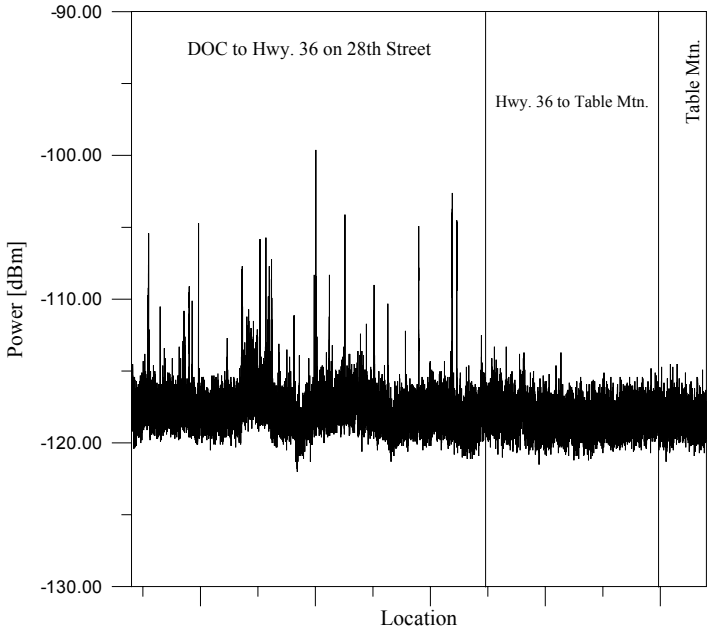

Figure B.23. Measured power levels on the 28th Street route for 533 MHz from a transmitter on Squaw Mountain. These data were taken on 28th Street to Highway 36 (from the DOC Laboratories to the Table Mountain NRQZ).

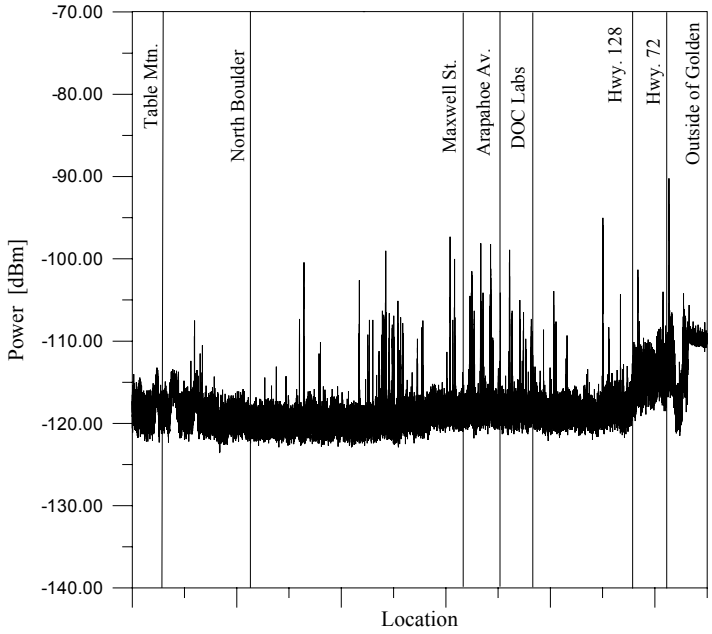

Figure B.24. Measured power levels on the Broadway loop for 533 MHz from a transmitter on Squaw Mountain. These data were taken on Highway 36 and Highway 93, starting at the Table Mountain NRQZ, going to Highway 72, and returning to the DOC Laboratories.

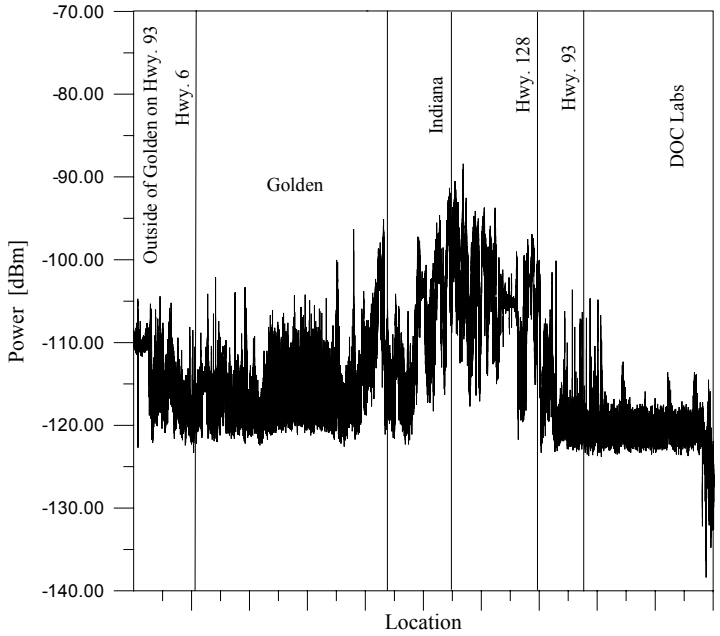

Figure B.25. Measured power levels on the Golden loop for 533 MHz from a transmitter on Squaw Mountain. These data were taken in Golden, Colorado returning to the DOC Laboratories via Indiana Ave.

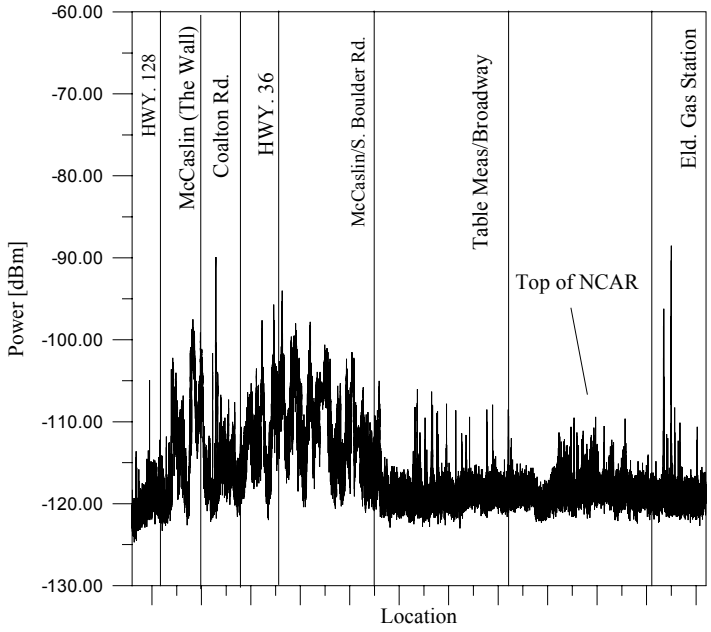

Figure B.26. Measured power levels on the McCaslin loop for 533 MHz from a transmitter on Squaw Mountain. These data were taken on various roads starting at a gas station at Eldorado Canyon and returning to the starting point.

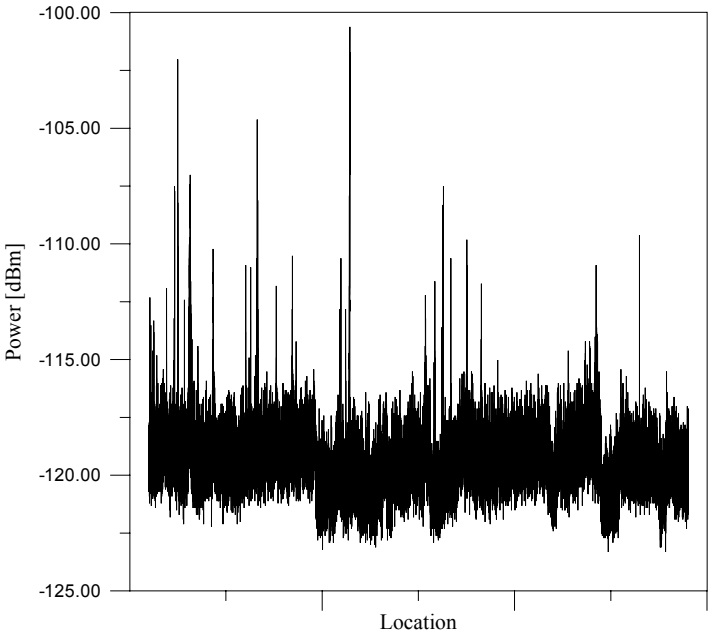

Figure B.27. Measured power levels on the Greenbriar loop for 533 MHz from a transmitter on Squaw Mountain. This loop consisted of Greenbriar Blvd., Lehigh Street, Table Mesa Drive, and Gillaspie Drive.

B.4 Measured Data for a Transmitter on Squaw Mountain at 772 MHz.

At this location and frequency, the transmitter power level was 37.0 dBm (5.0 W) with an antenna height of 8.20 m (26.91 ft) and a gain of 6.5 dBi (4.47). The height of the receiving antenna was 2.95 m (9.68 ft) with a gain of 1.9 dBi (1.55). Figures B.28 through B.34 present the measured power levels for various locations around the Boulder area.

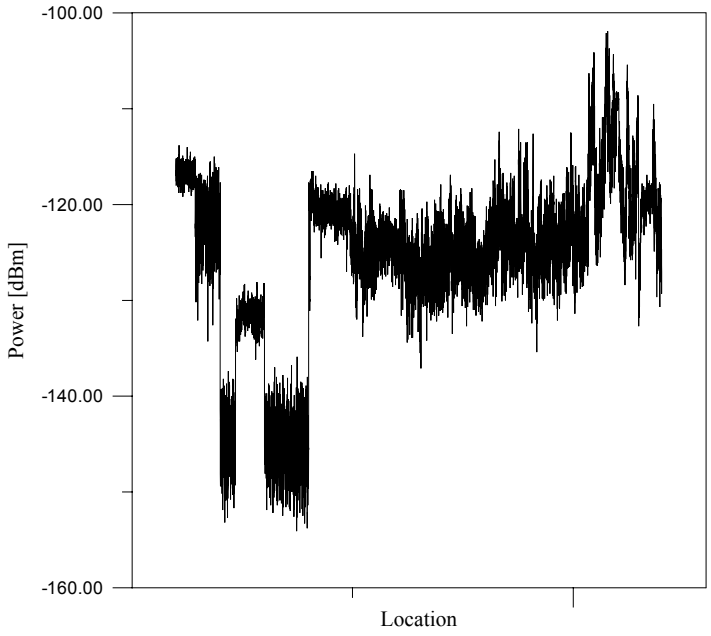

Figure B.28. Measured power levels for various locations at the DOC Laboratories for 772 MHz from a transmitter on Squaw Mountain. The results correspond to different locations as the measurement vehicle was driven along various roads on the Laboratory property.

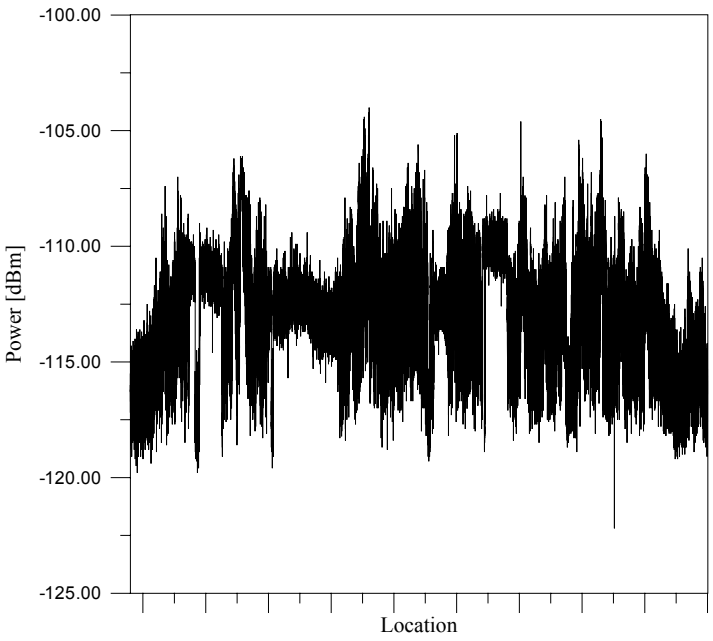

Figure B.29. Measured power levels at various locations on the Table Mountain NRQZ for 772 MHz from a transmitter on Squaw Mountain. The results correspond to different locations as the measurement vehicle was driven around the north-south road and the east-west road on the NRQZ.

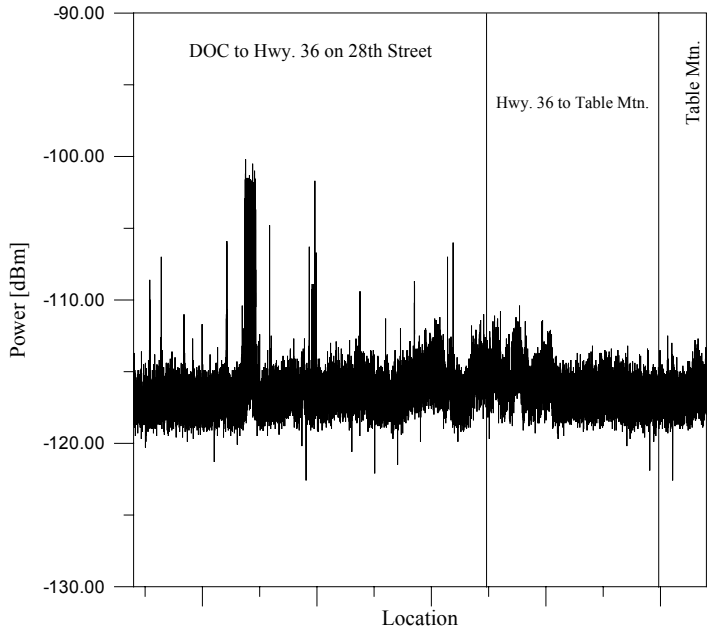

Figure B.30. Measured power levels on the 28th Street route for 772 MHz from a transmitter on Squaw Mountain. These data were taken on 28th Street to Highway 36 (from the DOC Laboratories to the Table Mountain NRQZ).

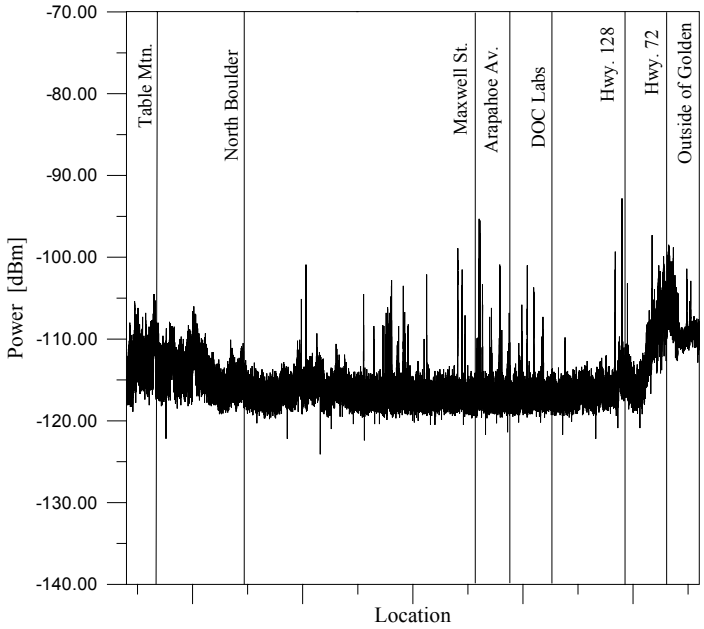

Figure B.31. Measured power levels on the Broadway loop for 772 MHz from a transmitter on Squaw Mountain. These data were taken on Highway 36 and Highway 93, starting at the Table Mountain NRQZ, going to Highway 72, and returning to the DOC Laboratories.

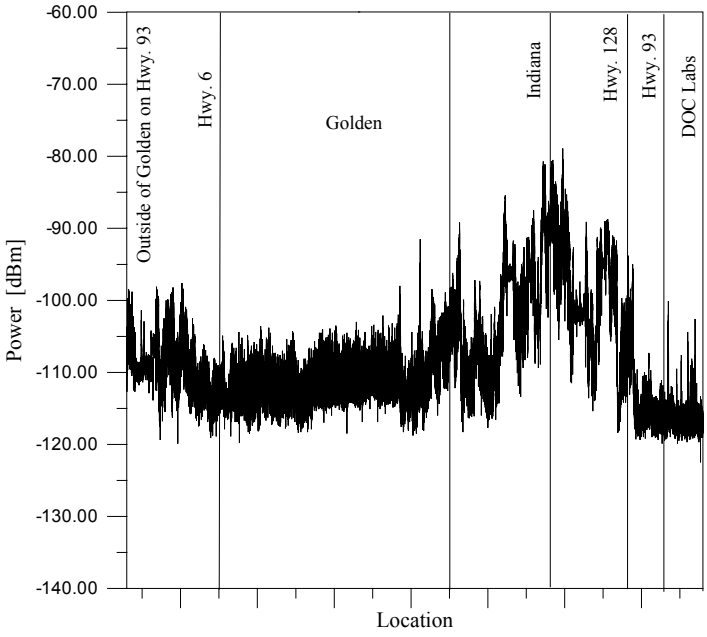

Figure B.32. Measured power levels on the Golden loop for 772 MHz from a transmitter on Squaw Mountain. These measured data were taken in Golden, Colorado returning to the DOC Laboratories via Indiana Ave.

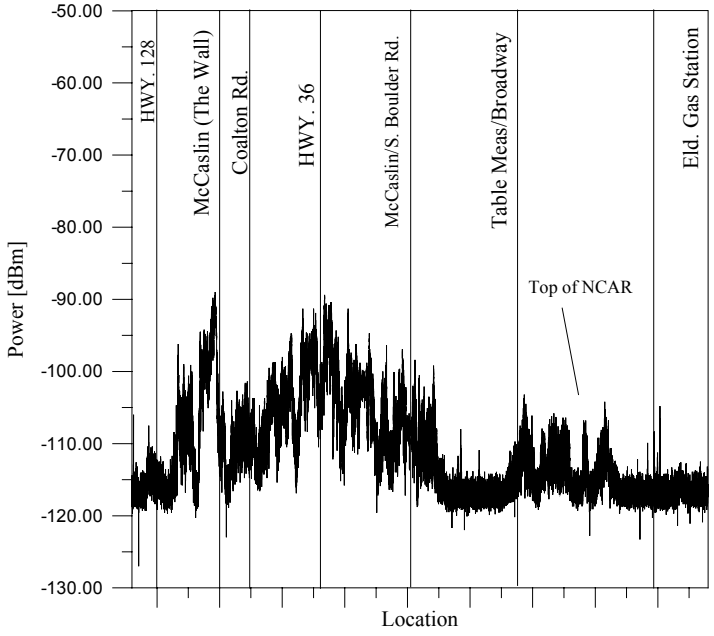

Figure B.33. Measured power levels on the McCaslin loop for 772 MHz from a transmitter on Squaw Mountain. These data were taken on various roads starting at a gas station at Eldorado Canyon and returning to the starting point.

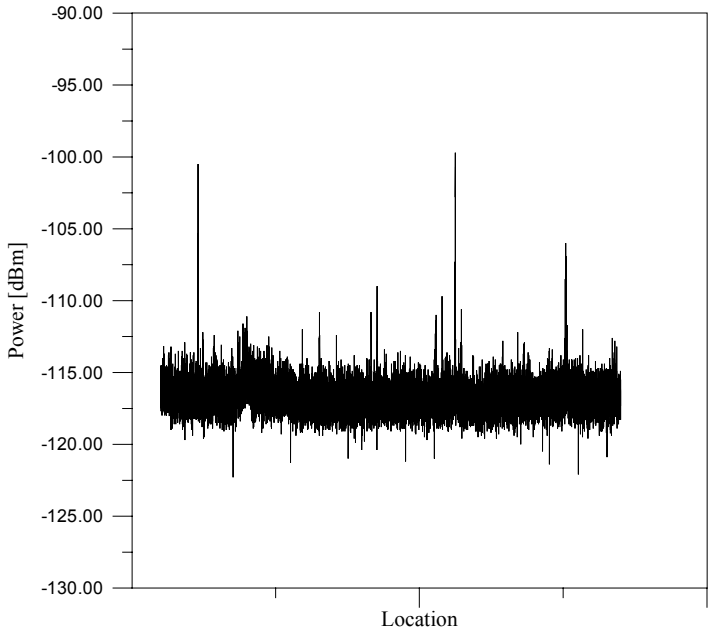

Figure B.34. Measured power levels on the Greenbriar loop for 772 MHz from a transmitter on Squaw Mountain. This loop consisted of Greenbriar Blvd., Lehigh Street, Table Mesa Drive, and Gillaspie Drive.